

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously presented) A printing apparatus for exposing an image onto a photosensitive medium, comprising:
 - (a) a printhead comprising a linear array of exposure sources, each said exposure source operable at a variable intensity;
 - (b) a shuttle for moving the printhead over the photosensitive medium in a reciprocating motion between one end of a carriage assembly and the other;
 - (c) an encoder coupled to the shuttle mechanism for providing an index signal at each of a plurality of incremental positions of the shuttle mechanism along the carriage assembly; and
 - (d) exposure control logic for calculating a instantaneous shuttle velocity according to index signal timing and for adjusting the variable intensity of each said exposure source according to said shuttle velocity.
2. (cancelled)
3. (previously presented) The printing apparatus as in claim 1 wherein said array of exposure sources comprises an LED array.
4. (previously presented) The printing apparatus as in claim 1 wherein said shuttle mechanism comprises a belt pulley.
5. (previously presented) The printing apparatus as in claim 1 wherein said encoder is an encoder strip.
6. (previously presented) The printing apparatus as in claim 1 wherein said photosensitive medium moves in a stepwise fashion between printing cycles.

7. (previously presented) The printing apparatus as in claim 1 wherein said photosensitive medium is motionless during each printing cycle.

8. (previously presented) The printing apparatus as in claim 1 wherein the same adjustment is made to the intensity of each of said exposure sources.

9. (previously presented) The printing apparatus as in claim 1 wherein said linear array of exposure sources is comprised of red, green, and blue light sources.

10. (previously presented) A method of printing by exposing an image onto a photosensitive medium, comprising:

(a) providing a printhead comprising a linear array of exposure sources, wherein each exposure source operates at a variable intensity, and wherein said printhead is coupled to a shuttle mechanism;

(b) moving said shuttle mechanism and said printhead over said photosensitive medium in a reciprocating motion between a first end of a carriage assembly and a second end of said carriage assembly;

(c) providing an index signal at each of a plurality of increments of position of the shuttle mechanism along the carriage assembly;

(d) calculating a shuttle velocity timing said index signal;
and

(e) adjusting said variable intensity of each said exposure source according to said instantaneous shuttle velocity.

11. (previously presented) A method for modulating exposure energy from exposure sources moved in a scan direction across a width of a photosensitive substrate comprising the steps of:

(a) measuring a changing instantaneous velocity of said exposure sources by obtaining a series of encoder signals, wherein each signal corresponds to a position along said scan direction;

(b) deriving a full scale correction factor for said changing velocity;

(c) multiplying said full scale correction factor to said predetermined target exposure intensity; and

(d) correcting said exposure errors due to said changing instantaneous velocity, resulting in uniform exposure density across a width of said photosensitive substrate.

12. (previously presented) A method for modulating exposure energy from exposure sources moved in a scan direction across a width of a photosensitive substrate comprising the steps of:

(a) measuring a changing instantaneous velocity of said exposure sources by obtaining a series of encoder signals, wherein each signal corresponds to a position along said scan direction;

(b) deriving a fractional correction factor, offset from a constant nominal value for said changing instantaneous velocity;

(c) calculating a correction factor by adding said derived fractional correction factor to a constant value representative of said nominal value for said changing instantaneous velocity;

(d) multiplying said calculated correction factor to said predetermined target exposure intensity; and

(e) correcting said exposure errors due to said changing instantaneous velocity, resulting in uniform exposure density across a width of said photosensitive substrate.

13. (previously presented) A printing apparatus for exposing an image onto a photosensitive medium, comprising:

(a) a printhead comprising a linear array of exposure sources, each said exposure source operable at a variable intensity;

(b) a shuttle for moving the printhead over the photosensitive medium in a reciprocating motion between one end of a carriage assembly and the other;

(c) an encoder coupled to the shuttle mechanism for providing an index signal at each of a plurality of incremental positions of the shuttle mechanism along the carriage assembly;

(d) exposure control logic for calculating an instantaneous shuttle velocity according to index signal timing and for adjusting the variable intensity of each said exposure source according to said shuttle velocity; and

(e) wherein said photosensitive medium in a stepwise fashion between printing cycles.